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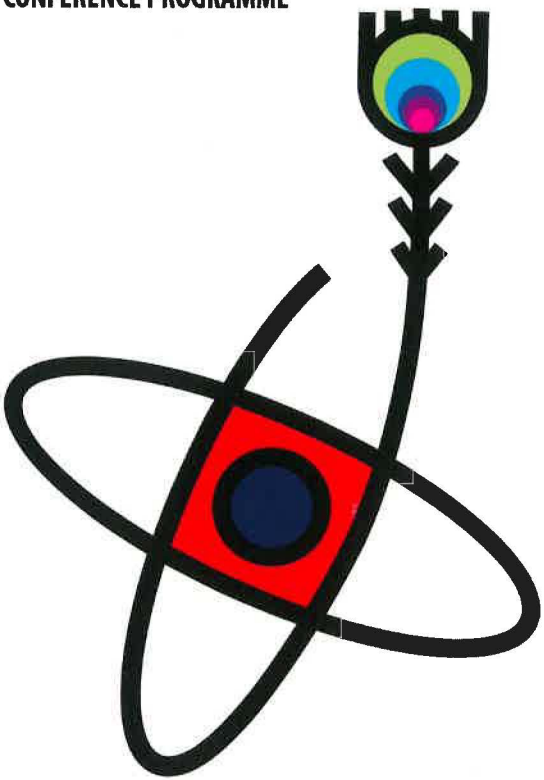
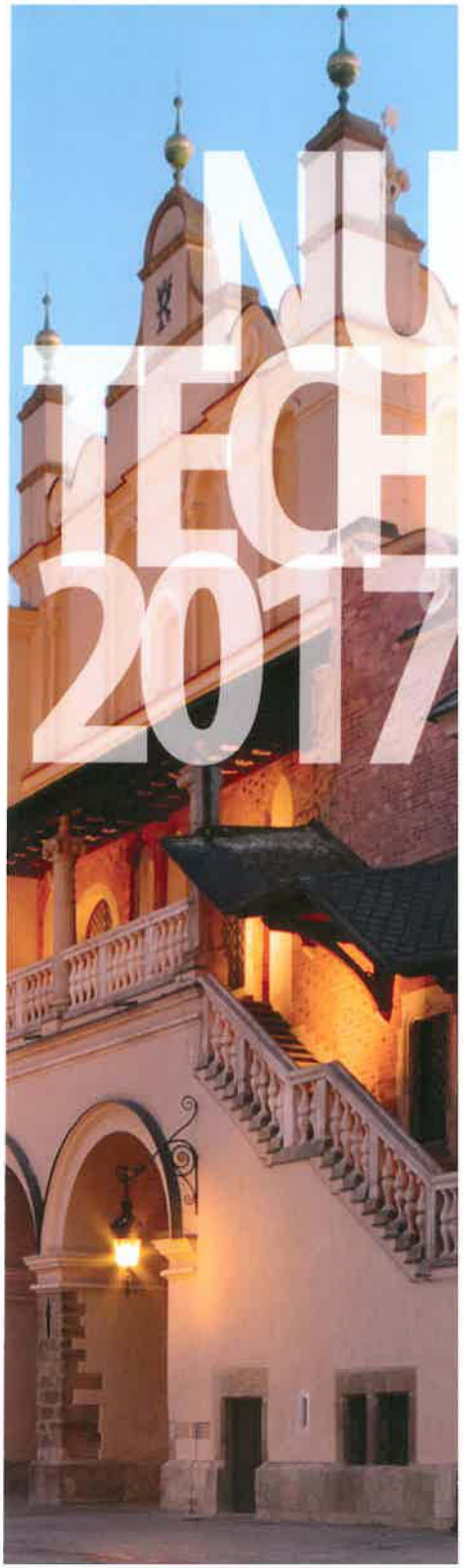
CONFERENCE PROGRAMME





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Conservation of wild mushrooms through electron beam irradiation

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Keywords: electron beam irradiation, mushrooms, nutritional value, chemical composition

ABSTRACT

The high perishability is a characteristic of the mushrooms consumed in fresh. Therefore, it is mandatory the application of effective conservation technologies to preserve and protect their chemical composition and nutritional value. Drying processes are widely used, but do not avoid the development of bacteria and fungi which have the ability to survive for long periods of time in dry foods, causing the loss of some nutrients and leading to food browning and oxidation of lipids and vitamins [1]. Irradiation appears as an alternative to food preservation assuring and maintaining its quality [2]. In this work, the effects of electron beam irradiation and storage time on nutritional and chemical parameters of wild samples of *Macrolepiota procera* (Scop.) Singer, previously submitted to a drying process (oven at 30 ºC), were assessed. The wild mushroom samples were collected in Trás-os-Montes; electron beam irradiation (doses 0.5, 1 and 6 kGy) was carried out in the INCT- Institute of Nuclear Chemistry and Technology in Warsaw, Poland and the analyses were performed over the storage period (0, 6 and 12 months). The results were compared with a control (non-irradiated samples). The nutritional value was determined according to the official procedures of food analysis, while the profiles of fatty acids, tocopherols, mono and oligosaccharides were obtained by chromatographic techniques [1]. The irradiation showed a better capacity to maintain the nutritional and chemical profile, in comparison with the storage time. Effectively, the storage time had a significant effect in all parameters, but fatty acids undergone significant changes both with irradiation doses and storage time. Electron beam irradiation can be considered a suitable technique for conservation of mushrooms for long periods of time, attenuating the changes caused by the drying treatment.

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